

CLAIMS

1. A disc cleaner comprising:

a supporting body including a first holding plane, a disc supporting plane and a convex portion, wherein the first holding plane holds a first type of disc cartridge, which exposes one side of a disc therein and which includes a rotational member for opening and closing shutters, such that the exposed side of the disc faces the first holding plane, the disc supporting plane is located higher than the first holding plane and contacts with a non-storage region of the disc around its center hole, thereby supporting the disc thereon, and the convex portion fits into the center hole of the disc so as to stick out of the center hole;

a shutter driving member for turning the rotational member of the first type of disc cartridge; and

a rotary knob including a contact plane that contacts with the non-storage region of the disc around its center hole and a concave portion that fits the convex portion so as to turn against the convex portion.

2. The disc cleaner of claim 1, wherein the supporting body further includes a second holding plane for holding a second type of disc cartridge with a shutter that opens and closes by sliding, and a shutter stopper for keeping the 5 shutter of the second type of disc cartridge opened, and wherein the disc supporting plane is located higher than the second holding plane.

3. The disc cleaner of claim 2, wherein the first 10 holding plane is located between the second holding plane and the disc supporting plane.

4. The disc cleaner of one of claims 1 to 3, wherein the shutter driving member includes an interlocking portion that 15 interlocks with a shutter operating portion provided for the rotational member of the first type of disc cartridge and a knob portion, and slides parallel to a side surface of the first type of disc cartridge with the rotational member and with respect to the supporting body.

5. The disc cleaner of claim 4, further comprising a cap member for sandwiching at least a part of the interlocking portion of the shutter driving member between the supporting body and itself such that the shutter driving member will not 5 drop off the supporting body, the cap member being attached to the supporting body.

6. The disc cleaner of one of claims 1 to 3, wherein the supporting body further includes an elastic member for 10 applying elastic force to the first type of disc cartridge toward the shutter driving member.

7. The disc cleaner of claim 4, wherein the supporting body has a first groove, which extends parallel to the side 15 surface of the first type of disc cartridge with the rotational member when the disc cartridge is held, and wherein the shutter driving member includes a first protrusion that fits into the first groove.

20 8. The disc cleaner of claim 7, wherein the supporting

body and the shutter driving member engage with each other such that the first protrusion of the shutter driving member does not come off the first groove of the supporting body.

5 9. The disc cleaner of claim 4, wherein the supporting body has a first side, for which the first and second holding planes are defined, and a second side that is opposite to the first side, and

 wherein the first and second sides have a first groove 10 and a second groove, respectively, which extend parallel to the side surface of the first type of disc cartridge with the rotational member, and

 wherein the shutter driving member has a first 15 protrusion and a second protrusion, which stick out so as to face each other and which fit into the first and second grooves, respectively.

10. The disc cleaner of one of claims 1 to 4, further comprising a lid that covers at least the first type of disc 20 cartridge held on the first holding plane of the supporting

body, and

wherein the lid has an opening corresponding to a window of the first type of disc cartridge that exposes when the shutters open.

5

11. The disc cleaner of claim 10, wherein the lid is supported in a rotatable position near one side surface of the supporting body.

10 12. The disc cleaner of claim 11, wherein the lid is supported on the supporting body so as to be readily removable from, and attachable to, the supporting body.

13. The disc cleaner of claim 10, wherein the lid has a 15 side surface extending toward the supporting body around the opening.

14. The disc cleaner of claim 10, wherein the lid has a raised position regulating portion on one side that faces the 20 supporting body, the position regulating portion regulating

vertical motion of the first type of disc cartridge that is held on the supporting body.

15. The disc cleaner of claim 10, wherein at least part 5 of the lid is transparent to the point that the first type of disc cartridge held on the first holding plane of the supporting body is seen though the lid.

16. The disc cleaner of claim 10, wherein the lid has a 10 first groove, which extends substantially parallel to the side surface of the first type of disc cartridge with the rotational member when the disc cartridge is held, and wherein the shutter driving member has a first protrusion that fits into the first groove.

15

17. The disc cleaner of claim 16, wherein the lid and the shutter driving member engage with each other such that the first protrusion of the shutter driving member does not come off the first groove of the lid.

20

18. The disc cleaner of claim 10, wherein the lid has a first side that faces the supporting body and a second side that is opposite to the first side, and

wherein the first and second sides have a first groove 5 and a second groove, respectively, which extend parallel to the side surface of the first type of disc cartridge with the rotational member, and

wherein the shutter driving member has a first protrusion and a second protrusion, which stick out so as to 10 face each other and which fit into the first and second grooves, respectively.

19. The disc cleaner of claim 10, wherein the shutter driving member has a third protrusion, and

15 wherein the supporting body has a third groove, which extends parallel to the side surface of the first type of disc cartridge with the rotational member when the disc cartridge is held, and which fits with the third protrusion of the shutter driving member, and a notch that communicates with the 20 third groove such that the third protrusion of the shutter

driving member is inserted into the third groove when the lid is attached to the supporting body so as to cover the first type of disc cartridge.

5 20. The disc cleaner of claim 19, wherein at least one of the shutter driving member and the lid has a fixing structure for fixing the shutter driving member onto the lid at a position where the third protrusion of the shutter driving member is insertable into the notch that communicates
10 with the third groove.

21. The disc cleaner of claim 10, wherein the interlocking portion of the shutter driving member includes a rack and first and second fitting portions, which respectively engage with a gear portion and first and second notches that are provided for the rotational member of the first type of disc cartridge, the gear portion being interposed between the first and second notches, the first and second fitting portions being supported elastically on the rack so as to
15 sandwich the rack between themselves.
20

22. The disc cleaner of claim 10, wherein the first fitting portion has a protrusion and contacts with the rotational member earlier than the second fitting portion in opening the shutters of the first type of disc cartridge, and

5 wherein the supporting body has a guide groove that receives the protrusion of the first fitting portion, and wherein if the shutter driving member has been moved so as to open the shutters of the first type of disc cartridge, the guide groove drives the protrusion of the first fitting 10 portion such that the first fitting portion contacts with a portion of the rotational member of the first type of disc cartridge other than the first notched portion and keeps the rotational member from turning, thereby retracting the first fitting portion.

15

23. The disc cleaner of one of claims 1 to 3, wherein the convex portion of the supporting body has two notched portions so as not to interfere with protrusions that are provided for the second type of disc cartridge so as to stick 20 out of the center hole of the disc.

24. The disc cleaner of one of claims 1 to 3, wherein the supporting body includes a storage portion for storing the rotary knob and another storage portion for storing a bottle of a cleaning liquid for cleaning the first disc.